

## \* NOTICES \*

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3. In the drawings, any words are not translated.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

#### [0001]

[Industrial Application] This invention relates to the temporary adhesion FPC which can perform automatic mounting of a flexible printed wiring board often [ precision ] and efficiently, and its approach of dealing with it. It is related with the temporary adhesion FPC which this invention removes FPC from the temporary-with punching adhesion FPC easily by use of an easy fixture at a detail, and makes it possible to remove FPC efficiently, and its approach of dealing with it.

#### [0002]

[Description of the Prior Art] When two or more products are conventionally dealt with and mounted in inspection and conveyance of a product about FPC, the approach of performing by one product dissociating at a time is learned (JP,2-39489,A, JP,4-264790,A official report). Moreover, FPC which considered as the approach of dealing with two or more produced FPC collectively, on the occasion of mounting of a patchboard, and carried out temporary adhesion of two or more FPC on the base sheet (back up plate) which prepared the common silk printing non-adhesion part was proposed previously.

[0003] However, in order to mount such FPC efficiently, this FPC group needed to be attracted and conveyed with the automatic mounting machine, but as shown in drawing 2, even if there is variation and it also attracted FPC2 by which temporary adhesion was carried out at the base sheet (back up plate) 1 to the adhesiveness of the adhesion section 3', it had troubles -- it is hard to separate from FPC. Moreover, since it had stuck to the base sheet even if it holds FPC directly by chucking with an automatic mounting machine, automatic wearing was difficult.

#### [0004]

[Means for Solving the Problem] By this invention person's establishing punching in the predetermined location of the base sheet which carries out temporary adhesion of FPC beforehand, as a result of examining many things about the above-mentioned technical problem, and floating FPC stuck to the base sheet corresponding to it with a pin fixture, it becomes possible to remove FPC efficiently, as a result, automatic mounting of FPC can be performed often [ precision ] and efficiently, and it came to complete a header and this invention for \*\*.

[0005] That is, this invention is the temporary adhesion FPC which punches beforehand the predetermined location of this fine adhesion base sheet to which FPC is made to adhere in the flexible printed wiring board (henceforth FPC) group by which plurality has been arranged on a :\*\* fine adhesion base sheet. furthermore, \*\* -- it is the approach which removes FPC by which temporary adhesion was carried out at the fine adhesion base sheet from this sheet using a pin fixture with the heights which are in agreement with punching of the fine adhesion base sheet punched beforehand to deal with FPC.

[0006] Hereafter, this invention is explained based on a drawing. The drawing 1 -(\*\*) is the top view showing the outline of the temporary adhesion FPC of this invention, the drawing 1 -(\*\*) is the partial cross section, and drawing 1 - (Ha) is the cross section which shows the condition of floating and removing [ attract and ] FPC from the temporary adhesion FPC of this invention. In drawing 1 , 1 is a fine adhesion base sheet which carries out temporary adhesion of FPC, 2 is FPC, 3 is a binder, and 4 is punching established in the predetermined location of a base sheet.

[0007] Moreover, in drawing 1 - (Ha), 5 is a pin fixture which has the operation which thrusts up heights to the punching 4 of the fine adhesion base sheet 1, and floats FPC on it, 6 is chucking which inserts in a grip and a predetermined mounting position FPC captivated from the fine adhesion base sheet 1, and is crowded, and 7 is a suction implement which attracts same FPC, inserts in a predetermined mounting position, and is crowded.

[0008] By doing in this way, in the case of for example, an automatic mounting machine FPC which is carrying out temporary adhesion in the predetermined location of the fine adhesion base sheet 1 The heights of the pin fixture 5 arranged by the position are thrust up from the punching 4 established in the predetermined location of a base sheet 1, each of an automatic mounting machine (not shown) -- FPC2 loses touch with the fine adhesion base sheet 1, subsequently, is caught or attracted by chucking 6 or the suction implement 7 of the

above-mentioned automatic mounting machine suitably arranged in the location, and is conveyed and fixed to a position.

[0009]

[Effect of the Invention] According to this invention, suction and conveyance of FPC, or tea king conveyance by the automatic mounting machine becomes easy. Moreover, it is possible to remove FPC from the temporary-with punching adhesion FPC easily by use of an easy fixture, and to remove FPC efficiently.

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[Translation done.]

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## DESCRIPTION OF DRAWINGS

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**[Brief Description of the Drawings]**

[Drawing 1] (\*\*) is the top view showing the outline of the temporary adhesion FPC of this invention, (\*\*) is the partial cross section, and (Ha) is the cross section which shows the condition of floating and removing [ attract and ] FPC from the temporary adhesion FPC of this invention.

[Drawing 2] It is the mimetic diagram showing the structure of the conventional temporary adhesion FPC, (b) is the top view, and (b) is the partial cross section.

**[Description of Notations]**

1 Fine Adhesion Base Sheet

2 FPC

3 Binder

3' Adhesion section

4 Punching

5 Pin Fixture

6 Chucking

7 Suction Implement

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[Translation done.]

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CLAIMS

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## [Claim(s)]

[Claim 1] Temporary adhesion FPC characterized by punching beforehand the predetermined location of this fine adhesion base sheet to which FPC is made to adhere in the flexible printed wiring board (henceforth FPC) group by which plurality has been arranged on a fine adhesion base sheet.

[Claim 2] The approach characterized by removing FPC by which temporary adhesion was carried out at the fine adhesion base sheet from this sheet using a pin fixture with the heights which are in agreement with punching of the fine adhesion base sheet punched beforehand to deal with FPC.

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[Translation done.]

PAT-NO: JP407074497A

DOCUMENT-IDENTIFIER: JP 07074497 A

TITLE: FLEXIBLE WIRING BOARD AND ITS TREATMENT

PUBN-DATE: March 17, 1995

INVENTOR-INFORMATION:

NAME

NISHIKAWA, JUNICHIRO

ASSIGNEE-INFORMATION:

NAME COUNTRY

SUMITOMO ELECTRIC IND LTD N/A

APPL-NO: JP05237294

APPL-DATE: August 31, 1993

INT-CL (IPC): H05K013/00, H05K001/02

ABSTRACT:

PURPOSE: To carry out automatic mounting for a flexible printed board with high accuracy and efficiency, by previously drilling a hole at a given position in a weakly adhesive base sheet used for sticking the flexible printed board.

CONSTITUTION: As an example, in an automatic mounting machine, a flexible printed circuit board(FPC) 2 that is temporarily stuck in a given place of a weakly adhesive base sheet 1 is pushed up by a projected part of a pin jig 5 at a given position of the automatic mounting machine through a hole 4 drilled in a given place of the base sheet 1. After the FPC board 2 is lifted up from the weakly adhesive base sheet 1, the FPC board 2 is picked or sucked by a chuck member 6 or a suction member 7 at a suitable point of the automatic mounting machine and the FPC board 2 is carried to a given position. In this way, the FPC board 2 closely stuck to the base sheet 1 is lifted by the pin jig 5 so

that the FPC board 2 is removed efficiently, and the automatic mounting is carried out with high accuracy and efficiency.

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DERWENT-ACC-NO: 1995-150668

DERWENT-WEEK: 199520

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TITLE: Flexible wiring board mounting method - involves  
punching predetermined portion of fine adhesion base  
sheet on which FPC is stuck and removed using pin jig

PATENT-ASSIGNEE: SUMITOMO ELECTRIC IND CO[SUME]

PRIORITY-DATA: 1993JP-0237294 (August 31, 1993)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN- IPC
JP 07074497 A	March 17, 1995	N/A	003	H05K 013/00

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
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JP 07074497A

N/A

1993JP-0237294

August 31, 1993

INT-CL (IPC): H05K001/02, H05K013/00

ABSTRACTED-PUB-NO: JP 07074497A

BASIC-ABSTRACT:

The method involves fixing multiple FPCs (2) temporarily on a fine adhesion base sheet (1) using an adhesive agent (3). A punching (4) is formed on a predetermined portion of the base sheet.

A pin jig (5) with a projection is inserted into the portion of the base sheet where the punching is provided. The FPC adhered on the base sheet is later removed from it using the pin jig.

ADVANTAGE - Removes FPC efficiently. Enables easy conveyance of FPC.

CHOSEN-DRAWING: Dwg.1/2

TITLE-TERMS: FLEXIBLE WIRE BOARD MOUNT METHOD PUNCH

PREDETERMINED PORTION FINE

ADHESIVE BASE SHEET FPC STICK REMOVE PIN JIG

ADDL-INDEXING-TERMS:

PCB

DERWENT-CLASS: V04

EPI-CODES: V04-Q05; V04-R05D;

SECONDARY-ACC-NO:

Non-CPI Secondary Accession Numbers: N1995-118375

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特開平7-74497

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H 05 K 13/00  
1/02

識別記号 Z  
庁内整理番号 A

F I

技術表示箇所

審査請求 未請求 請求項の数2 FD (全3頁)

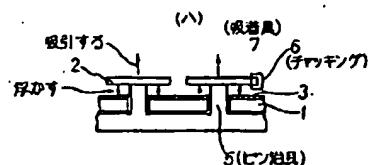
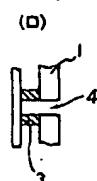
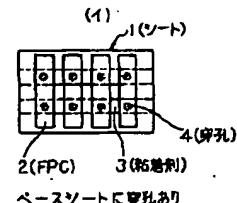
(21)出願番号	特願平5-237294	(71)出願人	000002130 住友電気工業株式会社 大阪府大阪市中央区北浜四丁目5番33号
(22)出願日	平成5年(1993)8月31日	(72)発明者	西川 鶴一郎 愛知県名古屋市南区菊住一丁目7番10号 住友電気工業株式会社名古屋製作所内

(54)【発明の名称】 フレキシブル配線板及びその取扱い方法

(57)【要約】

【構成】 ① 微粘着ベースシート上に複数個の配置された仮接着FPCにおいて、FPCを粘着させる微粘着ベースシートの所定位置に予め穿孔しておくこと。② 予め穿孔された微粘着ベースシートの穿孔に一致する凸部を持つピン治具を用いて、微粘着ベースシートに仮接着されたFPCをシートから取り外す、FPCの取扱い方法。

【効果】 自動実装機によるFPCの吸引・搬送又はチャギング搬送が容易になる。また、簡単な治具の使用により穿孔付き仮接着FPCからFPCを容易に剥がし、取り外しが可能。



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## 【特許請求の範囲】

【請求項1】 微粘着ベースシート上に複数個の配置されたフレキシブルプリント配線板（以下、FPCという）群において、該FPCを粘着させる微粘着ベースシートの所定位置に予め穿孔しておくことを特徴とする、仮接着FPC。

【請求項2】 予め穿孔された微粘着ベースシートの穿孔に一致する凸部を持つピン治具を用いて、微粘着ベースシートに仮接着されたFPCを該シートから取り外すことを特徴とする、FPCの取扱い方法。

## 【発明の詳細な説明】

## 【0001】

【産業上の利用分野】 本発明は、フレキシブルプリント配線板の自動実装を精度良くかつ効率よく行うことができる、仮接着FPC及びその取扱い方法に関する。詳細には、本発明は、簡単な治具の使用により穿孔付き仮接着FPCからFPCを容易に剥がし、効率よくFPCを取り外すことを可能とする、仮接着FPC及びその取扱い方法に関する。

## 【0002】

【従来の技術及び課題】 従来、FPCについて製品の検査・搬送等には複数の製品を取扱い、実装するときは、1製品ずつ分離して行う方法が知られている（特開平2-39489号公報、特開平4-264790公報）。また、配線板の実装に際して、作製されたFPCを複数個まとめて取り扱う方法として、複数のFPCを共通のシルク印刷非接着部を設けたベースシート（補強板）上に仮接着したFPCを先に提案した。

【0003】 しかし、このようなFPCの実装を効率よく実施するために、該FPC群を自動実装機により吸引・搬送する必要があるが、図2に示されるように、ベースシート（補強板）1に仮接着されたFPC2もその粘着部3'の粘着性にバラツキがあり、吸引してもFPCが外れ難い等の問題点があった。また、自動実装機によりFPCをチャッキングで直接につかむにしてもベースシートへ密着しているため自動装着が困難であった。

## 【0004】

【課題を解決するための手段】 本発明者は上記課題について種々検討した結果、FPCを仮接着するベースシートの所定位置に予め穿孔を設け、それと対応してベースシートに密着しているFPCをピン治具で浮かすことにより、効率よくFPCを取り外すことが可能となり、その結果FPCの自動実装を精度良くかつ効率よく行うことができるを見出し、本発明を完成するに至った。

【0005】 すなわち、本発明は：① 微粘着ベースシート上に複数個の配置されたフレキシブルプリント配線板（以下、FPCという）群において、該FPCを粘着させる微粘着ベースシートの所定位置に予め穿孔しておく、仮接着FPCである。さらに、② 予め穿孔された微粘着ベースシートの穿孔に一致する凸部を持つピン治

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具を用いて、微粘着ベースシートに仮接着されたFPCを該シートから取り外す、FPCの取扱い方法である。

【0006】 以下、本発明を図面に基づいて説明する。図1-（イ）は、本発明の仮接着FPCの概略を示す平面図であり、図1-（ロ）は、その部分横断面であり、図1-（ハ）は、本発明の仮接着FPCからFPCを浮かせて吸引、取り外す状態を示す横断面である。図1において、1はFPCを仮接着させる微粘着ベースシートであり、2はFPCであり、3は粘着剤であり、4はペ

10 ースシートの所定位置に設けられた穿孔である。

【0007】 また、図1-（ハ）において、5は微粘着ベースシート1の穿孔4に凸部を突き上げてFPCを浮かせる作用を有するピン治具であり、6は微粘着ベースシート1から浮かされたFPCをつかみ、所定の実装位置にはめこむチャッキングであり、7は同様のFPCを吸引して所定の実装位置にはめこむ吸引具である。

【0008】 このようにすることによって、例えば自動実装機の場合には、微粘着ベースシート1の所定位置に仮接着しているFPCは、自動実装機（図示されていない）のそれぞれ所定の位置に配備されているピン治具5の凸部がベースシート1の所定位置に設けられた穿孔4より突き上げられて、FPC2は微粘着ベースシート1から浮き上がり、次いで上記自動実装機の適宜位置に配設されたチャッキング6又は吸引具7により、つかみ取られ又は吸引されて所定の位置に搬送、固定されるのである。

## 【0009】

【発明の効果】 本発明によると、自動実装機によるFPCの吸引・搬送又はチャッキング搬送が容易になる。また、簡単な治具の使用により穿孔付き仮接着FPCからFPCを容易に剥がし、効率よくFPCを取り外すことが可能である。

## 【図面の簡単な説明】

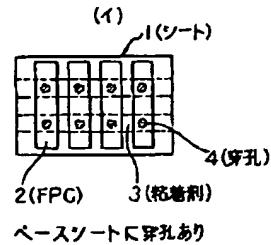
【図1】 （イ）は、本発明の仮接着FPCの概略を示す平面図であり、（ロ）は、その部分横断面であり、（ハ）は、本発明の仮接着FPCからFPCを浮かせて吸引、取り外す状態を示す横断面である。

【図2】 従来の仮接着FPCの構造を示す模式図であり、（イ）はその平面図であり、（ロ）はその部分横断面である。

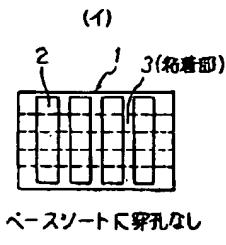
## 【符号の説明】

- 1 微粘着ベースシート
- 2 FPC
- 3 粘着剤
- 3' 粘着部
- 4 穿孔
- 5 ピン治具
- 6 チャッキング
- 7 吸引具

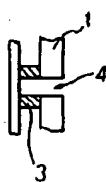
【図1】



【図2】



(D)



(D)

